

WHAT IS CLAIMED IS:

1. A method of bonding a conductive adhesive and an electrode together comprising:

coating a conductive adhesive containing a conductive filler and an organic binder on at least a surface of an electrode formed on a substrate; and

heating the conductive adhesive and the electrode under predetermined heating conditions so as to melt at least the surface of the electrode to form a fusion-bond between the surface of the electrode and the conductive filler; and

curing the organic binder contained in the conductive adhesive to electrically and mechanically bond the conductive adhesive and the electrode together.

2. The method of bonding a conductive adhesive and an electrode together according to Claim 1, wherein the organic binder comprises a thermosetting resin, and the act of heating the conductive adhesive and the electrode under predetermined heating conditions causes the surface of the electrode to be melted and fusion-bonded to the conductive filler contained in the conductive adhesive and causes the organic binder contained in the conductive adhesive to be thermally cured to bond the conductive adhesive and the electrode together.

3. The method of bonding a conductive adhesive and an electrode together according to Claim 2, wherein the

surface of the electrode comprises a metal material which can be melted under the predetermined heating conditions.

4. The method of bonding a conductive adhesive and an electrode together according to Claim 3, wherein the surface of the electrode comprises a surface layer formed on a base of the electrode by plating, the surface layer  
5 having a lower melting point than the base of the electrode.

5. The method of bonding a conductive adhesive and an electrode together according to Claim 1, wherein the conductive filler contained in the conductive adhesive comprises scale-like conductive filler particles.

6. The method of bonding a conductive adhesive and an electrode together according to claim 5, wherein at least a portion of at least some of the scale-like conductive filler particles are located in the surface of  
5 the electrode after the completion of the act of heating.

7. The method of bonding a conductive adhesive and an electrode together according to claim 1, wherein the conductive filler is partially located within the surface of the electrode after the completion of the act of  
5 heating.

8. The method of bonding a conductive adhesive and an electrode together according to Claim 1, wherein the

surface of the electrode and at least a portion of the  
conductive filler contained in the conductive adhesive  
5 are melted together.

9. The method of bonding a conductive adhesive and  
an electrode together according to Claim 1, wherein only  
a surface layer of the electrode is melted.

10. A method of bonding a conductive adhesive and a  
pair of electrodes together comprising the steps of:

coating the conductive adhesive containing a  
conductive filler and an organic binder on at least a  
5 first electrode formed on a surface of a first substrate;

adhering the conductive adhesive formed on the first  
electrode to a second electrode formed on a surface of a  
second substrate;

heating the conductive adhesive and the electrodes  
10 under predetermined heating conditions so as to melt the  
surfaces of the first electrode and second electrodes to  
form a fusion-bond between the surfaces of the first and  
second electrodes and the conductive filler contained in  
the conductive adhesive; and

15 curing the organic binder contained in the  
conductive adhesive to electrically and mechanically bond  
the conductive adhesive and the first and second  
electrodes together.

11. The method of bonding a conductive adhesive and  
a pair of electrode together according to Claim 10,

wherein the organic binder comprises a thermosetting resin, and the act of heating the conductive adhesive and the electrodes under predetermined heating conditions causes the surfaces of the electrodes to be melted and fusion-bonded to the conductive filler contained in the conductive adhesive and causes the organic binder contained in the conductive adhesive to be thermally cured to bond the conductive adhesive and the electrodes together.

12. The method of bonding a conductive adhesive and a pair of electrodes together according to Claim 13, wherein the surface of each of the electrodes comprises a metal material which can be melted under the predetermined heating conditions.

13. The method of bonding a conductive adhesive and a pair of electrodes together according to Claim 12, wherein the surface of each of the electrodes comprises a surface layer formed on a base of the respective electrode by plating, the surface layer of each respective electrode having a lower melting point than the base of the respective electrode.

14. The method of bonding a conductive adhesive and a pair of electrodes together according to Claim 10, wherein the conductive filler contained in the conductive adhesive comprises scale-like conductive filler particles.

15. The method of bonding a conductive adhesive and a pair of electrodes together according to claim 14, wherein at least a portion of at least some of the scale-like conductive filler particles are located in the surface of each of the electrodes after the completion of the act of heating.

16. The method of bonding a conductive adhesive and a pair of electrodes together according to claim 10, wherein the conductive filler is partially located within the surface of the electrodes after the completion of the act of heating.

17. The method of bonding a conductive adhesive and a pair of electrodes together according to Claim 10, wherein the surface of each of the electrodes and at least a portion of the conductive filler contained in the conductive adhesive are melted together.

18. The method of bonding a conductive adhesive and a pair of electrodes together according to claim 10, wherein only a surface layer of each of the electrodes is melted.

19. A bonded structure comprising first and second electrodes located on respective substrates and bonded together by a conductive adhesive in accordance with the method comprising:

5           coating the conductive adhesive containing a  
conductive filler and an organic binder on at least a  
surface of the first electrode;

          adhering the conductive adhesive formed on the first  
electrode to a surface of the second electrode; and

10           heating the conductive adhesive and the electrodes  
under predetermined heating conditions so as to melt the  
surfaces of the first electrode and second electrodes to  
form a fusion-bond between the surfaces of the first and  
second electrodes and the conductive filler contained in  
15           the conductive adhesive; and

          curing the organic binder contained in the  
conductive adhesive to electrically and mechanically bond  
the conductive adhesive and the first and second  
electrodes together.

20.   The bonded structure of claim 19, wherein the  
organic binder comprises a thermosetting resin, and the  
act of heating the conductive adhesive and the electrodes  
under predetermined heating conditions causes the  
5           surfaces of the electrodes to be melted and fusion-bonded  
to the conductive filler contained in the conductive  
adhesive and causes the organic binder contained in the  
conductive adhesive to be thermally cured to bond the  
conductive adhesive and the electrodes together.

21.   The bonded structure according to Claim 20,  
wherein the surface of each of the electrodes comprises a

metal material which can be melted under the predetermined heating conditions.

22. The bonded structure according to Claim 21, wherein the surface of each of the electrodes comprises a surface layer formed on a base of the respective electrode by plating, the surface layer of each  
5 respective electrode having a lower melting point than the base of the respective electrode.

23. The bonded structure according to Claim 19, wherein the conductive filler contained in the conductive adhesive comprises scale-like conductive filler particles.

24. The bonded structure according to claim 23, wherein at least a portion of at least some of the scale-like conductive filler particles are located in the surface of each of the electrodes after the completion of  
5 the act of heating.

25. The bonded structure according to claim 19, wherein the conductive filler is partially located within the surface of the electrodes after the completion of the act of heating.

26. The bonded structure according to Claim 19, wherein the surface of each of the electrodes and at

least a portion of the conductive filler contained in the conductive adhesive are melted together.

27. The bonded structure according to claim 19, wherein only a surface layer of each of the electrodes is melted.

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